

C-16: Polluted (non-treated) wastewaters

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1) General description

1.1) *Brief definition*

The indicator defines the share of non-treated or non-sufficiently treated wastewaters that were discharged into water bodies in the total volume of wastewaters generated in a country in a given year.

1.2) *Units of measurement*

Volumes of wastewater are measured in cubic meters; the share of non-treated wastewater in the total volume of generated wastewater is expressed as a percentage.

1.3) *Context*

Relation to other indicators from the Guidelines - This indicator relates to indicators “C-14: Population connected to wastewater treatment” and “C-15: Wastewater treatment facilities”.

2) Relevance for environmental policy

2.1) *Purpose*

The indicator defines the level of the pressure on water bodies through non-treated or non-sufficiently treated wastewaters. It makes it possible to obtain information necessary for developing measures for the protection of water bodies and helps to assess measures taken to increase the efficiency of the wastewater management system.

2.2) *Issue*

Non-treated or non-sufficiently treated wastewaters exert significant pressure on the water resources through the outflow of organic matter and nutrients as well as of hazardous substances. The inability to ensure treatment of the total amount of wastewater delivered to treatment plants, owing to their insufficient capacity, obsolete equipment and technology or inefficient use, is among the major factors of anthropogenic impact on aquatic ecosystems.

2.3) International agreements and targets

a) Regional level

The ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (and its protocols) obliges the Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable and ecologically sound management. Its Protocol on Water and Health requires that the Parties take all appropriate measures to ensure adequate sanitation.

b) Subregional level

The Environmental Strategy of countries of South-Eastern and Eastern Europe, Caucasus and Central Asia, adopted by the 2003 Ministerial Conference “Environment for Europe”, requires the preparation and implementation of programmes for integrated water management, including the aim to increase the volume of collected and treated wastewaters.

In the European Union (EU), the Water Framework Directive (Directive 2000/60/EC) obliges the Member States to promote sustainable use of available water resources based on long-term protection and to ensure a balance between abstraction and recharge of water with the aim of achieving a “good water status” by 2015. Directive 91/271/EEC concerning urban wastewater treatment obliges the Member States to ensure that all agglomerations above 2000 population equivalents (p.e.) are provided with collecting systems for urban wastewater and that discharge is subject to secondary treatment or an equivalent treatment.

It was fully implemented in the EU-15 countries by 2005 and has to be fully implemented in the 12 new Member States by 2008–2015.

3) Methodology and guidelines

3.1) Data collection and calculations

Monitoring of discharges of polluted wastewaters should provide for obtaining information on the quantity of wastewater not treated at wastewater treatment plants and of those treated insufficiently. When conducting primary metering, the frequency of sampling at water outlet points should be provided. Environmental authorities and hygiene services should exercise well-established control over the quality and authenticity of primary measurements. Processing of source data and its inclusion in informational databases should be done using updated information technologies. Major difficulties in obtaining representative data on wastewaters not treated by wastewater treatment plants and on those treated insufficiently are confined to low frequency of primary sampling and a lack of

the necessary equipment to measure wastewater quantity and quality. Alternatively, if a monitoring network of discharges of polluted wastewaters is not yet in place, the volume of non-treated wastewater can be calculated as the sum of total wastewater discharged minus the total wastewater treated in urban, independent and other treatment facilities.

A simplified formula for the calculation of the share polluted (non-treated) wastewaters in the total wastewater discharged is:

$$\text{Share of non-treated wastewaters in the total volume of wastewaters (\%)} = \frac{\text{volume of non-treated wastewater}}{\text{volume of total wastewater discharged}}$$

3.2) Internationally agreed methodologies and standards

The UNSD/UNEP Questionnaire on Environmental Statistics (Table W4); The Joint OECD/Eurostat Questionnaire on the State of the Environment (Inland Waters, Table 6); The UNCSD Methodology Sheets for Indicators of Sustainable Development (Proportion of Population using improved sanitation facilities); The ECE/WHO Guidelines on the Setting of Targets, Evaluation of Progress and Reporting under the Protocol on Water and Health; International Recommendations for Water Statistics (IRWS), UNSD 2012.

4) Data sources and reporting

Companies and organizations in countries of South-Eastern and Eastern Europe, Caucasus and Central Asia have to report on their wastewater discharges to state inspection authorities using standard forms. Many countries have departmental and national databases concerning quantities of wastewater not treated (or not sufficiently treated) at wastewater treatment plants. Information is entered into the State water cadastre. Information on volumes of wastewaters and on concentrations of pollutants therein is published in annual environmental reports and in statistical yearbooks. Countries also report data in their inputs to the UNSD Environment Statistics Database.

5) References at the international level

- UNSD/UNEP Questionnaire on Environment Statistics (2013): <http://unstats.un.org/unsd/environment/questionnaire2013.html>;
- Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment

- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive): http://ec.europa.eu/environment/water/water-framework/index_en.html
- ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992): <http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf>; amendment 2003: <http://www.unece.org/fileadmin/DAM/env/documents/2004/wat/ece.mp.wat.14.e.pdf>
- Environmental Indicator Report 2012, EEA 2012
- European Commission – Water Policy: http://ec.europa.eu/environment/water/index_en.htm
- European Environment Agency (EEA): <http://www.eea.europa.eu/themes/water>
- Europe's Environment, The 4th Assessment, EEA 2007
- Eurostat: <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators>
- Global water information system of the Food and Agriculture Organization (AQUASTAT): http://www.fao.org/ag/agl/aglw/aquastat/water_res/waterres_tab.htm
- International Organization for Standardization (ISO): <http://www.iso.org>
- International Recommendations for Water Statistics (IRWS): <http://unstats.un.org/unsd/envaccounting/irws/irwswebversion.pdf>
- Organization for Economic Co-operation and Development (OECD): <http://oecd.org/env/>
- Protocol on Water and Health to the ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: <http://www.unece.org/fileadmin/DAM/env/documents/2000/wat/mp.wat.2000.1.e.pdf>
- The European Environment-State and Outlook 2010: Synthesis, EEA 2010
- The Protocol on Water and Health: Guidelines on the Setting of Targets, Evaluation of Progress and Reporting, ECE/WHO 2010: http://www.unece.org/env/water/publications/documents/guidelines_target_setting.pdf
- United Nations Statistics Division (UNSD): <http://unstats.un.org/unsd/environment/>

- World Health Organization (WHO): <http://www.euro.who.int/en/home>